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EXAMINER

MOMPER, ANNA M

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3657

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,227	Applicant(s) BALDOVINO ET AL.	
	Examiner ANNA MOMPER	Art Unit 3657	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 May 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/21/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claims 5 and 6 recite the "second material occupies a surface between" a percentage "of the total", however do not disclose what "the total" is referring to. A recommended revision if appropriate would be "the total surface of the first material".

4. Claim 7 recites the claim limitation "being of the type known as 'Lang's Twist'". This claim is indefinite as it is unclear as to what structural elements are required in the claim and what is encompassed by the addition of the term "type".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-2, and 4-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danhauer et al. (US 2002/0098935 A1) in view of Mashimo et al. (US 4,498,891).

As per claim 1, Danhauer et al. discloses a toothed belt (10) for use with oil and comprising a body (12, 14, 16), a plurality of teeth (18) extending from at least a first surface of said body, and a plurality of resistant inserts (22); characterized in that said resistant inserts are produced from at least a first and a second material ([0019]).

Danhauer et al. fails to explicitly disclose the teeth being coated by a first fabric.

Mashimo et al. discloses a belt having a plurality of teeth (20) and being coated by a fabric (19).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Danhauer et al. to include the teeth being coated by a fabric, as taught by Mashimo et al. to reduce wear of the belt.

As per claim 2, Danhauer et al. further discloses the first material covers the second material at least partly ([0019], the two materials are helically wound together, thus the first material will at least partly cover the second material).

As per claim 4, Danhauer et al. further discloses the first material has a lower modulus with respect to the second material ([0019] when the first material is chosen as glass and the second material is chosen as carbon fiber).

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As per claims 5-7, Danhauer et al. fails to explicitly disclose the second material occupies a surface between 15 and 75% (claim 5) or preferably between 35 and 45 % (claim 6) of the total, and the resistant inserts being of the type of Lang's twist (claim 7).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Danhauer et al. to include the second material occupies a surface of between 15 and 75% and between 35 and 45 % of the total, and the resistant inserts being of the type of Lang's twist, as taught by Mashimo et al., for the purpose of providing stiffness to the belt.

Mashimo et al. further discloses resistant inserts (16) being woven in the type of Lang's twist (Col. 2, Ln. 60-64) and occupying a surface between 35 and 45% of the total (Table 1).

As per claims 8-10 Danhauer et al. further discloses the first material is glass fiber ([0019], claim 9) and the second material is carbon fiber ([0019], claim 10).

8. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danhauer et al. (US 2002/0098935 A1) in view of Mashimo et al. (US 4,498,891), as applied to claim 1 above, and further in view of Knutson (US 6,945,891).

Modified Danhauer et al. discloses all elements of the claimed invention as disclosed in claim 1 above, but fails to explicitly disclose the resistant inserts have been treated with an RFL comprising a latex (claim 11) which comprises an elastomeric material formed from a copolymer obtained from a diene monomer and a monomer containing nitrile groups (claim 12).

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Knutson discloses a power transmission belt (10) in which tensile fibers (18) of carbon are coated with an RFL composition (Col. 6, Ln. 8-23) wherein the RFL composition comprises a latex which comprises the copolymer HNBR (Col. 6, Ln. 45-60).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Danhauer et al. to include the resistant inserts have been treated with an RFL comprising a latex which comprises an elastomeric material formed from a copolymer obtained from a diene monomer and a monomer containing nitrile groups, as taught by Knutson, for the purpose of ensuring adhesion of the resistant inserts to the belt.

9. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danhauer et al. (US 2002/0098935 A1) in view of Mashimo et al. (US 4,498,891) and Knutson (US 6,945,891), as applied to claim 12 above, and further in view of Acten (US 7,396,884 B2).

As per claims 13 and 14, Modified Danhauer et al. fails to explicitly disclose the nitrile groups are in a percentage between 33 and 49 weight % of the final copolymer (claim 13) or preferably 39 weight % (claim 14).

Acten discloses an adhesive base for reinforcing materials (Col. 1, Ln. 16-20) containing HNBR wherein the nitrile group content is in the range of 10 to 50 wt. % or preferably 15 to 39 wt. %.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Danhauer et al. to include the nitrile groups are

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in a percentage between 33 and 49 weight % of the final copolymer, or preferably 39 weight %, as taught by Acten, for the purpose of ensuring adhesion of the resistant inserts to the belt.

10. Claim 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danhauer et al. (US 2002/0098935 A1) in view of Mashimo et al. (US 4,498,891), as applied to claim 1 above, and further in view of Osaka et al. (US 7,056,249 B1).

As per claim 15 and 17-18, Modified Danhauer et al. discloses all elements of the claimed invention as described in claim 1 above, but fail to explicitly disclose the fabric is externally coated by a resistant layer of polytetrafluoroethylene (claim 18) in an amount between 101 and 150 parts per weight with the elastomeric material (claim 17), a first elastomeric material and a vulcanizing agent.

Osaka et al. discloses a belt (10) having a fabric layer (24, 56) coated by a resistance layer (40) of polytetrafluoroethylene (Col. 6, Ln. 26-32) in an amount of 30 to 200 parts per weight of a first elastomeric material (36, Col. 6, Ln. 7-12, Ln. 43-46).

Osaka et al. fails to explicitly disclose the use of a vulcanizing agent, however Osaka et al. discloses the step of vulcanizing after the treatment of the fabric (Col. 8, Ln. 44-50) therefore it would have been known by one in the art that a vulcanizing agent could be used to speed up vulcanization.

It would have been obvious to one of ordinary skill in the art at the time of the time of the invention to modify the belt of Modified Danhauer et al. to include a resistant layer of polytetrafluoroethylene in an amount between 101 and 150 parts per weight of

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a first elastomeric material and a vulcanizing agent, as taught by Osaka et al., for the purpose of reducing friction.

As per claim 16, Danhauer et al. further discloses the body (12) comprises a mixture based on a second elastomeric material formed from a copolymer obtained from a diene monomer and a monomer containing nitrile groups ([0018], NBR- nitrile butadiene rubber).

As per claim 19, Mashimo et al. further discloses the possibility of using a fabric (14) on the back surface of the belt body (11).

As per claims 20-21, Osaka et al. discloses a belt (10) having a fabric layer (24, 56) coated by a resistance layer (40) of polytetrafluoroethylene (Col. 6, Ln. 26-32) to reduce friction.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Danhauer et al. to include the fabric on the back surface of the belt body to also be coated by a resistance layer of polytetrafluoroethylene, as taught by Osaka et al., for the purpose of reducing friction.

As per claim 22, Danhauer et al. further discloses the use of discrete fibers in the elastomeric material ([0026])

11. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Danhauer et al. (US 2002/0098935 A1) in view of Mashimo et al. (US 4,498,891), and Osaka et al. (US 7,056,249 B1), as applied to claim 22 above, and further in view of Knutson (US 6,945,891).

Modified Danhauer et al. discloses all elements of the claimed invention as described in claim 22 above, but fails to explicitly disclose the fibers are present in an amount in weight between 0.5 and 15% with respect to said elastomeric material.

Knutson et al. a power transmission belt (10) having of discrete fibers in the elastomeric material (Col. 4, Ln. 7-25) in the range of about 0.5 to 20 phr with respect to the elastomeric material (Col. 4, Ln. 7-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Danhauer et al. to include the fibers are present in an amount in weight between 0.5 and 15% with respect to said elastomeric material, as taught by Knutson et al., for the purpose of increasing strength of the belt.

12. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Danhauer et al. (US 2002/0098935 A1) in view of Mashimo et al. (US 4,498,891), as applied to claim 1 above, and further in view of Nakajima et al. (US 5,306,213).

Modified Danhauer et al. discloses all elements of the claimed invention as described in claim 1 above, but fails to explicitly disclose the belt being treated with a polymer resistant to swelling between the toothings and the back side.

Nakajima et al. discloses a toothed belt (30) in which a rubber layer (14) being made of an oil-resistant rubber composition different from that of the belt body (12) in order to prevent swelling of the belt.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Danhauer et al. to include the belt treated with a

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polymer resistant to swelling, as taught by Nakajima et al., for the purpose of increasing the life of the belt.

13. Claims 1-3 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welk et al. (US 2004/0033857 A1) in view of Mashimo et al. (US 4,498,891).

As per claim 1, Welk et al. discloses a toothed belt (10) for use with oil and comprising a body (11), a plurality of teeth (12) extending from at least a first surface of said body, and a plurality of resistant inserts (13); characterized in that said resistant inserts are produced from at least a first (100, 101, [0025]) and a second material (200, 201, [0026]).

Welk et al. fails to explicitly disclose the teeth being coated by a fabric.

Mashimo et al. discloses a belt having a plurality of teeth (20) and being coated by a fabric (19).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Welk et al. to include the teeth being coated by a fabric, as taught by Mashimo et al. to reduce wear of the belt.

As per claims 2 and 3, Welk et al. further discloses first material entirely surrounds said second material (Fig. 2-4).

As per claim 25, Modified Welk et al. disclose all element of the belt as described in claim 1 above. Welk further discloses the use of the belt in a power transmission system between the drive and driven pulley in a case including an accessory belt system with a vehicle engine.

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14. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welk et al. (US 2004/0033857 A1) in view of Mashimo et al. (US 4,498,891), as applied to claim 1 above, and further in view of Knutson (US 6,945,891).

Modified Welk et al. discloses all elements of the claimed invention as disclosed in claim 1 above, but fails to explicitly disclose the resistant inserts have been treated with an RFL comprising a latex (claim 11) which comprises an elastomeric material formed from a copolymer obtained from a diene monomer and a monomer containing nitrile groups (claim 12).

Knutson discloses a power transmission belt (10) in which tensile fibers (18) of carbon are coated with an RFL composition (Col. 6, Ln. 8-23) wherein the RFL composition comprises a latex which comprises the copolymer HNBR (Col. 6, Ln. 45-60).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Welk et al. to include the resistant inserts have been treated with an RFL comprising a latex which comprises an elastomeric material formed from a copolymer obtained from a diene monomer and a monomer containing nitrile groups, as taught by Knutson, for the purpose of ensuring adhesion of the resistant inserts to the belt.

15. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welk et al. (US 2004/0033857 A1) in view of Mashimo et al. (US 4,498,891) and Knutson (US 6,945,891), as applied to claim 12 above, and further in view of Acten (US 7,396,884 B2).

As per claims 13 and 14, Modified Welk et al. fails to explicitly disclose the nitrile groups are in a percentage between 33 and 49 weight % of the final copolymer (claim 13) or preferably 39 weight % (claim 14).

Acten discloses an adhesive base for reinforcing materials (Col. 1, Ln. 16-20) containing HNBR wherein the nitrile group content is in the range of 10 to 50 wt. % or preferably 15 to 39 wt. %.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Welk et al. to include the nitrile groups are in a percentage between 33 and 49 weight % of the final copolymer, or preferably 39 weight %, as taught by Acten, for the purpose of ensuring adhesion of the resistant inserts to the belt.

16. Claim 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welk et al. (US 2004/0033857 A1) in view of Mashimo et al. (US 4,498,891), as applied to claim 1 above, and further in view of Osaka et al. (US 7,056,249 B1).

As per claim 15 and 17-18, Modified Welk et al. discloses all elements of the claimed invention as described in claim 1 above, but fail to explicitly disclose the fabric is externally coated by a resistant layer of polytetrafluoroethylene (claim 18) in an amount between 101 and 150 parts per weight with the elastomeric material (claim 17), a first elastomeric material and a vulcanizing agent.

Osaka et al. discloses a belt (10) having a fabric layer (24, 56) coated by a resistance layer (40) of polytetrafluoroethylene (Col. 6, Ln. 26-32) in an amount of 30 to 200 parts per weight of a first elastomeric material (36, Col. 6, Ln. 7-12, Ln. 43-46).

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Osaka et al. fails to explicitly disclose the use of a vulcanizing agent, however Osaka et al. discloses the step of vulcanizing after the treatment of the fabric (Col. 8, Ln. 44-50) therefore it would have been known by one in the art that a vulcanizing agent could be used to speed up vulcanization.

It would have been obvious to one of ordinary skill in the art at the time of the time of the invention to modify the belt of Modified Welk et al. to include a resistant layer of polytetrafluoroethylene in an amount between 101 and 150 parts per weight of a first elastomeric material and a vulcanizing agent, as taught by Osaka et al., for the purpose of reducing friction.

As per claim 16, Welk et al. further discloses the belt body (11) comprising a mixture based on a second elastomeric material formed from a copolymer obtained from a diene monomer and a monomer containing nitrile groups ([0028]).

As per claim 19, Mashimo et al. further discloses the possibility of using a fabric (14) on the back surface of the belt body (11).

As per claims 20-21, Osaka et al. discloses a belt (10) having a fabric layer (24, 56) coated by a resistance layer (40) of polytetrafluoroethylene (Col. 6, Ln. 26-32) to reduce friction.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Welk et al. to include the fabric on the back surface of the belt body to also be coated by a resistance layer of polytetrafluoroethylene, as taught by Osaka et al., for the purpose of reducing friction.

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17. Claim 22-23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Welk et al. (US 2004/0033857 A1) in view of Mashimo et al. (US 4,498,891), and Osaka et al. (US 7,056,249 B1), as applied to claim 15 above, and further in view of Knutson (US 6,945,891).

Modified Welk et al. discloses all elements of the claimed invention as described in claim 15 above, but fails to explicitly disclose fibers are present in an amount in weight between 0.5 and 15% with respect to said elastomeric material.

Knutson et al. a power transmission belt (10) having of discrete fibers in the elastomeric material (Col. 4, Ln. 7-25) in the range of about 0.5 to 20 phr with respect to the elastomeric material (Col. 4, Ln. 7-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Welk et al. to include fibers in an amount in weight between 0.5 and 15% with respect to said elastomeric material, as taught by Knutson et al., for the purpose of increasing strength of the belt.

18. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Welk et al. (US 2004/0033857 A1) in view of Mashimo et al. (US 4,498,891), as applied to claim 1 above, and further in view of Nakajima et al. (US 5,306,213).

Modified Welk et al. discloses all elements of the claimed invention as described in claim 1 above, but fails to explicitly disclose the belt being treated with a polymer resistant to swelling between the toothing and the back side.

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Nakajima et al. discloses a toothed belt (30) in which a rubber layer (14) being made of an oil-resistant rubber composition different from that of the belt body (12) in order to prevent swelling of the belt.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt of Modified Welk et al. to include the belt treated with a polymer resistant to swelling, as taught by Nakajima et al., for the purpose of increasing the life of the belt.

19. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Welk et al. (US 2004/0033857 A1) in view of Mashimo et al. (US 4,498,891), as applied to claim 25 above, and further in view of Hashimoto et al. (US 2004/0127316 A1).

Modified Welk et al. discloses all elements of the claimed invention as applied to claim 25 above, but fail to explicitly disclose a pad tensioner or a pad.

Hashimoto et al. discloses a pad tensioner (100, TL) and a pad (TG) for use in imparting tension on a timing belt of a power transmission system in a vehicle ([0001], [0008]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the belt power transmission system of Modified Welk et al. to include a pad or pad tensioner, as taught by Hashimoto et al., for the purpose of maintaining tension in the belt.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANNA MOMPER whose telephone number is (571)270-5788. The examiner can normally be reached on M-F 6:00-3:30 (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on (571) 272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bradley T King/
Primary Examiner, Art Unit 3657

am